PROJECT DEVELOPMENT PHASE

SPRINT 2

TEAM ID	PNT2022TMID 08449
PROJECT NAME	IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE
DATE	31 OCTOBER 2022

STEP 1: Write a python code for randomize Soil Moisture ,Temperature and Humidity.


```python
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random

# Provide your IBM Watson Device Credentials
organization = "8gyz7t"  # replace the ORG ID
deviceType = "weather_monitor"  # replace the Device type
deviceId = "b827ebd607b5"  # replace Device ID
authMethod = "token"
authToken = "LWVpQPaVQ166HWN48f"  # Replace the authtoken


def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    print(cmd)


try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod, "auth-token": authToken}
    deviceCli = ibmiotf.device.Client(deviceOptions)
    #...........................................

except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()

# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type "greeting" 10 times
deviceCli.connect()

while True:
    temp=random.randint(0,100)
    pulse=random.randint(0,100)
    soil=random.randint(0,100)

    data = { 'temp' : temp, 'pulse': pulse ,'soil':soil}
    #print data
    def myOnPublishCallback():
```
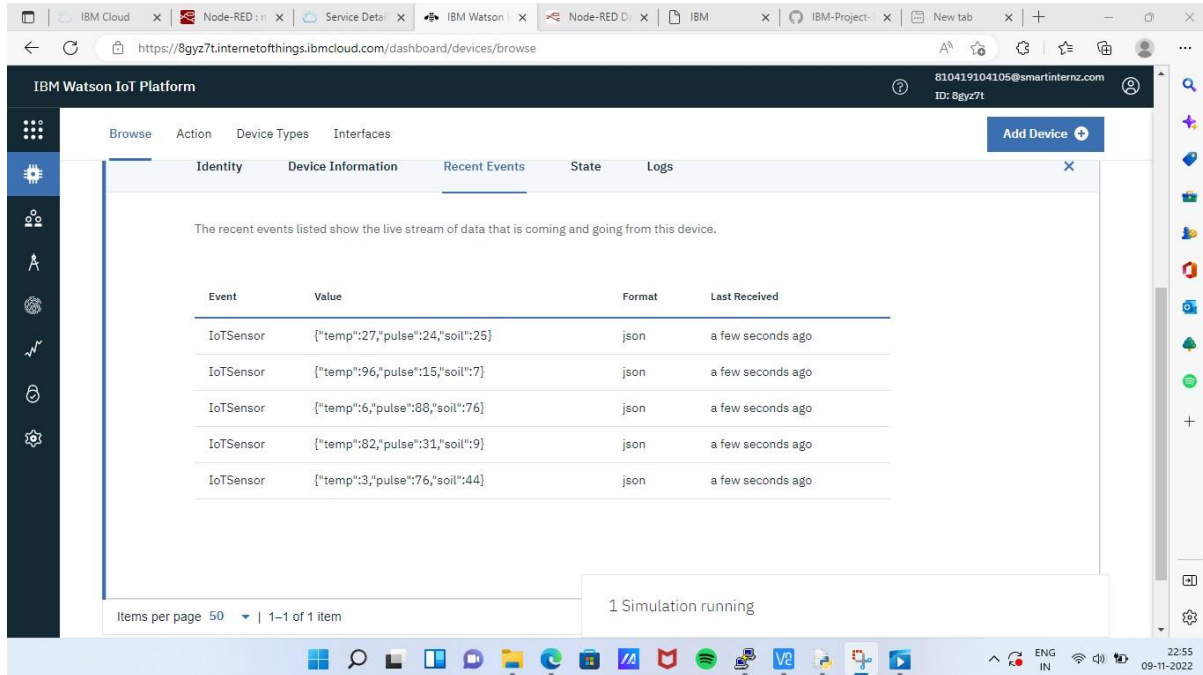
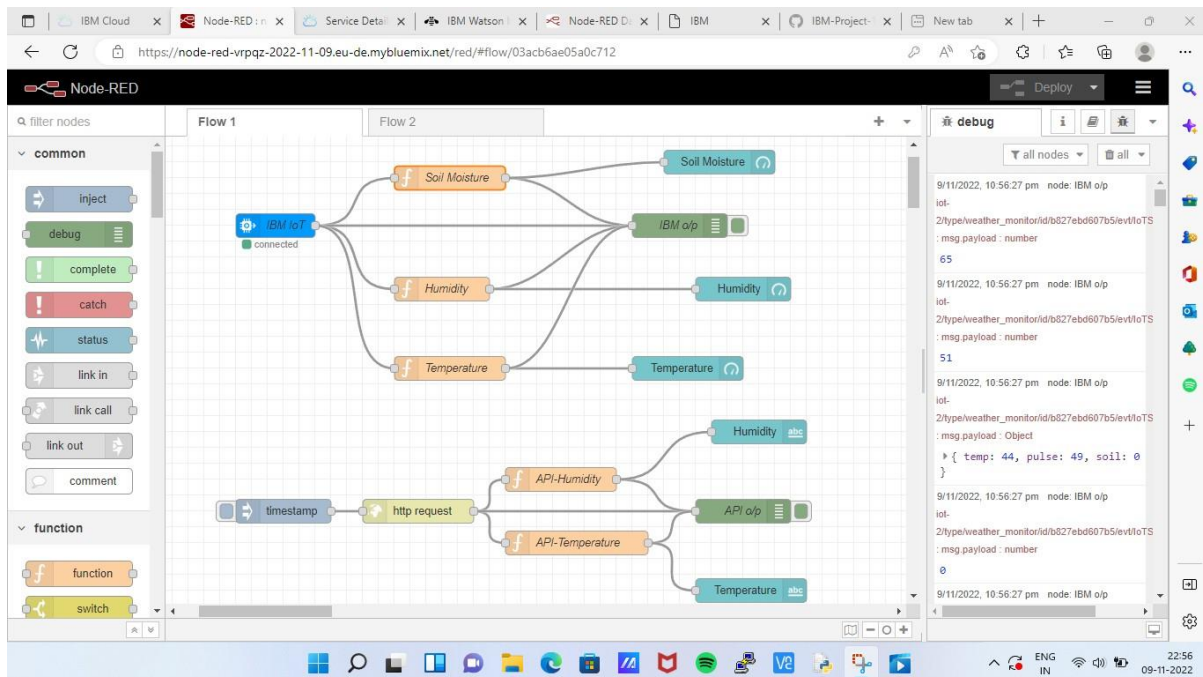# STEP 2: Run the python code it send data to IBM IoT Watson Platform.

STEP 3: Open Node-RED flow dashboard.

STEP 4: Open Node-RED user interface to show the Soil Moisture, Humidity and Temperature value in gauge.
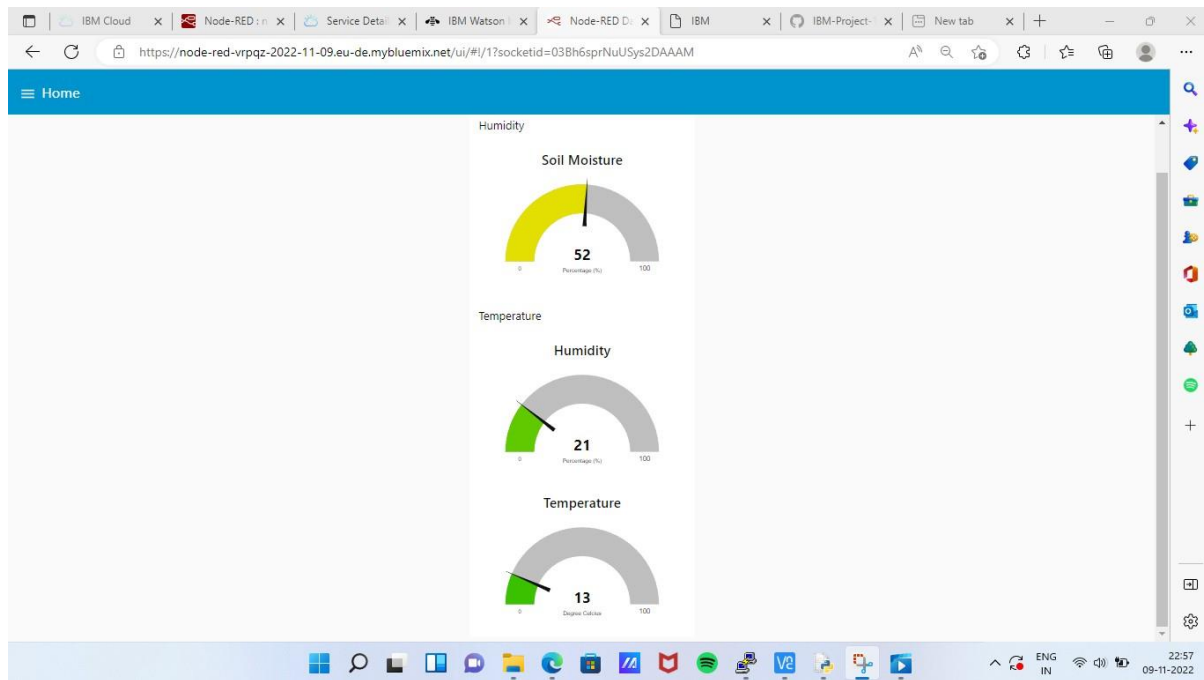
PYTHON CODE :

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```

```python
        print ("Published Temperature = %s C" % temp, "Humidity = %s %%"
% pulse,"Soil Moisture = %s %%" % soil,"to IBM Watson")


    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)
    if not success:

        print("Not connected to IoTF")
    time.sleep(1)


    deviceCli.commandCallback = myCommandCallback


# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

Node-RED :

[{"id":"b42b5519fee73ee2","type":"ibmiot
in","z":"03acb6ae05a0c712","authentication":"apiKey","apiKey":"ef745d48e39
5ccc0","inputType":"evt","logicalInterface":"","ruleId":"","deviceId":"b827ebd
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","gtype":"gage","title":"Humidity","label":"Percentage
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wad,%20IN&appid=6aa2b89eb478ce7baebf384e671bfd15","tls":"","persist":fal
se,"proxy":"","authType":"","senderr":false,"x":450,"y":540,"wires":[["f7c149a
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,"wires":[]},{"id":"f7c149a3169164e8","type":"function","z":"03acb6ae05a0c7
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msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":490,"y":360
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ture","label":"Degree
Celcius","format":"{{value}}","min":0,"max":"100","colors":["#00b500","#e6e
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mperature","format":"{{msg.payload}}","layout":"row-spread","className":"","x":870,"y":640,"wires":[]},{"id":"23e82e5991b96c8d","type":"ui_text","z":"03acb6ae05a0c712","group":"f4cb8513b95c98a4","order":1,"width":"0","height":"0","name":"","label":"Humidity","format":"{{msg.payload}}","layout":"row-spread","className":"","x":880,"y":440,"wires":[]},{"id":"ba98e701f55f04fe","type":"ui_gauge","z":"03acb6ae05a0c712","name":"","group":"f4cb8513b95c98a4","order":1,"width":"0","height":"0","gtype":"gage","title":"Soil Moisture","label":"Percentage (%)","format":"{{value}}","min":0,"max":"100","colors":["#00b500","#e6e600","#ca3838"],"seg1":"","seg2":"","className":"","x":830,"y":100,"wires":[]},{"id":"ef745d48e395ccc0","type":"ibmiot","name":"weather_monitor","keepalive":"60","serverName":"","cleansession":true,"appId":"","shared":false},{"id":"f4cb8513b95c98a4","type":"ui_group","name":"monitor","tab":"1f4cb829.2fdee8","order":2,"disp":true,"width":"6","collapse":false,"className":""},{"id":"1f4cb829.2fdee8","type":"ui_tab","name":"Home","icon":"dashboard","order":3,"disabled":false,"hidden":false}]